

Modernisation pioneers offered a test mine

A team drawn together from the Chamber of Mines, the Council for Scientific and Industrial Research and equipment makers is awaiting the unprecedented gift of an underground South African mine to begin actively testing ideas and machines that are designed to prevent the country's gold and platinum production from falling a cliff in little more than a decade.

By [Allan Secombe](#) 6 Jun 2017



Graphs from the chamber, whose members produce 90% of SA's mineral wealth, show steep declines in platinum and gold production within a decade if mines continue to operate as they do now, with negligible mechanisation.

By introducing mechanisation, production can continue at lower levels than now for the next 20 years. By making mines continuous mechanised operations, the true value is unlocked, adding another 30 years or more of production in gold and decades more platinum mining.

"The chamber has told other stakeholders that this is the last kick of the can. We have to get this right. The age of choice - doing this or not has gone if you have social responsibility," says chamber consultant Alastair Macfarlane.

Only 50% of gold and available platinum resources have been mined so far because current cooling technology cannot cope with depths greater than 2.5km on platinum deposits, which have a higher virgin rock temperature than gold, he says.

The work at the Council for Scientific and Industrial Research building specially designated for the project in Johannesburg is in the early stages. The various parties want to formalise a public-private partnership and a funding model by the end of 2017.

The Department of Science and Technology has committed R150m towards university research programmes linked to the project and the Department of Trade and Industry is injecting R10m for manufacturers to establish themselves as a cluster.

Local mining companies spent R1.34bn on research and development in 2015. The portion of funding that will go into the project is still under negotiation, with some companies offering services or facilities in lieu of money.

A functional mine is one such donation and the partners are working through myriad legal, regulatory and commercial complications thrown up by the unprecedented offer, which has equipment manufacturers salivating at the almost unfettered opportunity to test machines and ideas in situ.

The work in SA ranges from better exploration techniques and understanding of ore bodies, mechanical and continuous-mining methods, digitalisation of mining processes and work with labour and communities to bring them along on the journey, says the chamber's Sietse van der Woude, senior executive of modernisation and safety. The team prefers to focus on the modernisation of mines rather than just the technology aspects of mining, he says. "It's a major overhaul of the mining industry. It's a very broad concept," he says.

"Over and above technology, we are looking for zero harm, with improvements in health and safety, how we skill our employees for better-paid and more fulfilling jobs, and how we engage with our communities for local economic development."

The chamber's focus after 1994 was to cope with a radically different regulatory and policy environment at the expense of research and development services in the chamber, says Macfarlane. Since 2015, the chamber decided to step up its role modernising the industry again after companies turned their attention inward for research and development, with overlapping concepts and exposure to budget cuts.

He concedes that some of the mechanisation of underground mines will cost a number of jobs, but the teams hope to offset these losses by increased manufacturing of specialist machines in SA for local mines and for export.

The argument presented to the government and the unions about the need for mechanisation and round-the-clock mining is that it will save thousands of jobs for decades, creating a more highly skilled and better-paid workforce.

The technology drive is not exclusive to SA, with Rio Tinto operating a fleet of driverless trucks at its giant iron-ore mines in Australia to cut costs and boost productivity.

At Kumba Iron Ore, which operates two large opencast iron-ore mines in SA, the drive is towards increased automation to "get the best we can out of our equipment and operators, making mining safer and more productive", says Glen McGavigan, executive head of technical and projects.

Source: *Business Day*